Medicine in Perspective

A Brief History of Graduate Medical Education in Washington, Alaska, Montana, and Idaho

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Internships and hospital-based medical education preceded by more than 40 years the beginnings of a medical school in Washington State. Just after the turn of the 20th century, a few internships were begun by hospitals in Seattle and Spokane to help with the care of their sicker patients in the tradition of Eastern teaching hospitals. In the 1920s and 1930s, the number of hospitals with internship programs grew steadily as part of a nationwide effort at hospital standardization. Experiences in developing these programs and problems with intern recruitment contributed to the beginning of the University of Washington School of Medicine after World War II. Since the 1960s, intern and resident training has progressively become a cooperative effort of the school with many hospitals and clinics in Washington, Alaska, Montana, and Idaho contributing to the development of graduate medical education in this region.

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A century ago there were only a few programs for graduate medical education in the United States, principally in teaching hospitals in the major Eastern cities.[1] In the late 19th century, the number of hospitals as well as the number of internships and residencies began to grow, related to the development of modern surgery and anesthesiology, changes in medical education, and advances in the scientific basis of medical practice. At this time the Pacific Northwest was sparsely settled and had few educational institutions or hospitals. Oregon had begun a medical school in 1887, but there were no medical education programs in the state of Washington. The first internships and hospital-based medical education were begun in Washington more than 40 years before a medical school was started. These early programs contributed in many ways to establishing a medical school of the University of Washington. This history shows the gradual and relatively recent development of medical education in the Western states and the unique relationships that have fostered the development of the University of Washington School of Medicine as a regional medical school.[2]

Background

The historic roots of our system of training interns and residents are traceable to the first formal system of hospital-based training established in England by the Society of Apothecaries in 1617.[1] Almost 50 years later, the London hospitals—St Bartholomew's, Guy's, St Thomas's, and others—were opened to medical students and apprentices, or "pupils" and "dressers." In 1744 the Royal Infirmary in Edinburgh appointed a "clerk of the house" with medical duties, as well as responsibilities for collecting tickets from students and fees from patients. By the late 18th century, young physicians working in Edinburgh were called "residents," the term later adopted by many of the founders of the early American medical schools who had trained there. "Intern" is the French term for this same position; it did not come into wide use here until early in the 20th century.

Soon after the opening of the first US medical schools (Pennsylvania, 1765; Columbia [New York], 1767; Harvard [Boston], 1782), a few hospitals began internship-type programs. In 1773 the Pennsylvania Hospital, which had opened in 1751, took on its first intern. Philadelphia General Hospital appointed four "house pupils" in 1789. The New York Hospital (1797) and the Massachusetts General Hospital (1820) were other early sites for graduate training.

Before there were any hospitals or internships in the Northwest, many of the present-day characteristics of graduate medical education had already been established. In a number of urban locations, hospitals accepted trainees who would supplement their medical education after receiving the MD degree while they assisted the hospital staff with the care of the sicker patients. In the mid-19th century, as these hospitals began to grow, divisions of labor began to occur, with more and more specific medical and laboratory responsibilities being assigned to interns and residents.[3]

There are no accurate records of the number of internships or residency positions before 1900. There are, however, numerous general descriptions of intern and resident training. Hospital appointments were made usually for a year but sometimes longer. A hospital often provided housing, clothing, and food but usually no salary. Interns worked very long hours. The education format was largely informal. Then as now, the most highly sought internships were in hospitals closely affiliated with medical schools. Interns worked with a variety of attending physicians and nurses. They provided patient care and spent some of their time teaching practical skills to medical students while learning the nuances of medicine from a variety of clinical teachers.[4]

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The Beginning of Hospitals and Internships in Washington

The first hospitals in the Northwest were begun in the 1870s. St Vincent's Hospital in Portland, the first hospital in the region, was begun by Mother Joseph of the Sacred Heart and the Sisters of Providence in 1875. In 1877 Seattle's first hospital was started with the arrival of three Sisters of Providence from Portland to operate a hospital for King County at the poor farm in Georgetown.[5] Because this facility was owned by the county and operated by the Sisters of Providence, it is the common origin of what are now the Providence Medical Center and the Harborview Medical Center. Although Seattle's first physician, Doc Maynard, had two rooms in his home where he and his wife, Katherine, cared for sick patients somewhat earlier, theirs could hardly have been called a hospital.[6]

In terms of medical education, there were no interns in the early days of the hospital at the poor farm, but the two institutions that emerged from this early health care facility later became important centers for training interns and residents. It is noteworthy that the Sisters of Providence not only began a hospital in Seattle, but soon thereafter, in 1886, they began a hospital in Spokane (Washington), the Sacred Heart Hospital, and a number of other health care institutions across the region, as well.[7]

The coming of the railroad, the Alaskan gold rush, and the rapid growth in Seattle's population in the 1880s and 1890s caused many changes in the city's population and its health care institutions. By 1883 efforts were underway to regulate medical practice in the territory, and an act of the legislature allegedly drove out many quack practitioners. The King County Hospital was expanded in 1885, and in 1887, the county commissioners began administering it themselves, with a complete separation from Providence, due in part to complaints from non-Catholics in the community.[5]

In 1895 the Seattle General Hospital was founded by a group of civic-minded women who thought the community needed a Protestant hospital. They were aided substantially by a miner who had struck it rich in the Klondike. In 1897 Seattle General, like many other hospitals across the country in this era, started a school of nursing. In 1902-1903, Seattle General accepted Frank T. Maxson, MD, to serve as the hospital intern. According to the records of the Office of Medical Education at Swedish Hospital Medical Center, Dr Maxson was the first graduate medical education trainee in the state of Washington.

The appointment of Maxson reflected the rapid changes in medicine that occurred in the last quarter of the 19th century and heralded the gradual but steady growth of graduate medical education in the region in the years to follow. At this time, modern basic medical sciences, hospital laboratories, and diagnostic techniques, particularly in radiology and cardiology, were all developing rapidly. From a clinical perspective, however, the most dramatic changes were occurring in surgery. The development of safe techniques for removing the appendix and gallbladder was having a major influence on hospitals everywhere. Throughout the country, surgical case loads increased dramatically. To meet the need for more beds, efforts were made to increase hospital efficiency and to abbreviate the length of hospital stays. Many new hospital-based nursing schools started because more nurses were needed. Many new hospitals were established, as well.[3]

As Paul Starr points out in his book, *The Social Transformation of American Medicine,* these changes in the characteristics of hospitals set the stage for important changes in the responsibilities and the training of physicians.[3] As the needs of patients in hospital became more medical and technical, the influence of physicians increased. They, rather than laypersons, decided who was sick enough to be admitted and who was well enough to leave. Because it was generally in the mutual interest of physicians and the hospital to operate efficiently and, if possible, profitably, interns often were added to make hospital stays go faster and smoother. This also helped hospitals wanting more patients to attract more physicians to the medical staff. Thus, in the first decade of this century, a critical change in graduate medical education happened. Interns were no longer just advanced students in a few teaching hospitals; they were in demand for their services and—almost everywhere—began to be paid.

Internships and Hospital Standardization

The first list of internships in the United States was published by the American Medical Association in 1914. At that time there were 11 such positions available at hospitals in Washington: the Northwest Sanitarium in Port Townsend (1); King County Hospital (1); Seattle City Hospital (3); Seattle General Hospital (2); Northern Pacific Hospital, Tacoma (2); and St Joseph's Hospital, Tacoma (2). Most of these appointments were for a year. Five of six offered some salary. Only the hospital of the Northern Pacific Railroad in Tacoma was listed as having a library. Records are scarce, but apparently several of these positions went unfilled.

A review of hospital records shows that there were some sporadic intern appointments in other hospitals before this date. For instance, in addition to the appointment of Maxson, Mary MacMillan Rodney, MD, was an intern at the Deaconess Hospital in Spokane in 1907-1908[8(p40)]; John Edward Godfrey, MD, interned at Providence in 1912-1913; and Albert Knutsen, MD, interned at Providence in 1913-1914. Godfrey's appointment at Providence was perhaps typical for the early interns in this area. He had graduated from the University of Toronto, Ontario, and came to Seattle from Washington, DC, where he had already been in practice for ten years. On arrival in Seattle, he learned that he had to wait six months until he could obtain a license. While waiting, he visited Providence and met Sister Vincent Ferrier, then the Sister Superior there. She invited him to serve as an intern, to be the hospital's anesthetist, and to direct work of the laboratory while waiting for his state examinations. Godfrey later practiced surgery in the hospital with George Horton, MD, organized the Anatomy Club for the staff physicians and subsequent interns, and made a number of other contributions to Providence Hospital (from the archives of Sisters of Providence and the Providence Medical Center).

At the time of the publication of the first internship list, there were no national standards for internships or, for that matter, for hospitals.[9] Soon after its founding in 1913, the American College of Surgeons established that the records of 100 cases should be reviewed for each surgeon applying for membership in the college. It was quickly discovered, however, that neither the physicians nor their hospitals had such records. A very important effort was then made by the Col-

lege that resulted in hospital standardization—better hospital record keeping, the examination of surgical specimens by pathologists, autopsy reports, and the organization of a defined medical staff for each hospital. Later, a staff of interns served to improve the chance that a hospital would be highly accredited.[9]

Soon after the beginning of hospital standardization, another important change occurred in Washington. The state required an internship for licensure to practice medicine, one of the early states to do so. The records of the Executive Medical Staff of Seattle's Providence Hospital reveal much about the dynamics of the changes that followed. The first meeting of the executive committee of the medical staff was held May 19, 1920. At that meeting, Dr George Horton served as chair and Homer Dudley, MD, was elected secretary. Attending this meeting also was Sister John Gabriel on behalf of the Sisters of Providence, who had stimulated the organization of the medical staff so that the hospital would be accredited. At the original meeting, it was decided that medical records could not contain sealed information, that the name of the surgeon should not appear on requests for reports on pathology specimens, and that the operating surgeon would have authority over how specimens removed at operation would be displayed in the hospital. At their second meeting, it was deemed desirable to exclude some physicians from having hospital privileges at Providence, but action on this matter was deferred on advice from the hospital lawyer.

Early in the fall of 1920, discussions began about the privileges and duties of interns, who apparently were wanted more by the Sisters than by the medical staff. A committee was appointed to consider the matter but deliberated slowly. Sister Gabriel pushed for developing the internship program but little happened. The physicians said that the hospital was not prepared to appoint enough interns to assist them adequately; there were concerns also that the quality of the persons who could be attracted would not be satisfactory. In January 1921 Sister Superior announced that the rules and regulations governing internships at Providence, which were formulated by a committee consisting of Drs Dudley, Allen, and Dowling, were satisfactory to the hospital management, but no action was taken by the medical executive committee. At the May 1921 meeting, the Sister Superior again brought up the subject of internships, but action by the executive committee was again deferred. Interestingly, to the end of the first volume of medical staff notes in 1922, there is no record of the executive medical staff committing itself to support an internship program, although many other notes were made, including a record of appreciation to the Sisters for providing cigars for their meetings.

Sister Gabriel was also involved on behalf of the Sisters of Providence in the organization of the medical staff of the Sacred Heart Hospital in Spokane.[7] Their first organizational meeting was held on August 28, 1919; all licensed physicians of the city and county were invited to this meeting. Although Sacred Heart had appointed four interns "from Eastern schools" in July of 1920, they apparently did not perform satisfactorily and further recruitment was tabled. When the hospital reported to the American College of Surgeons Committee on Hospital Standardization in 1922, it indicated that it lacked interns due to its inability to procure them. The hospital administration, however, persisted in its efforts to secure interns, stimulated by the accreditation visits from the American College of Surgeons. In 1929 the director of the College indicated in a letter to the hospital that interns "would be of great help in promoting better case records as well as increasing the general efficiency of the hospital." Finally in 1931, with approval of the medical executive committee and the persistent work of Sister Mary Alice, an internship program was started.[7]

Growth and Problems for Early Internship Programs

In Seattle, King County Hospital (Harborview) apparently had interns from before 1914, but no records of the program before the 1920s are currently available. The 1921 financial records of the hospital indicate that interns were paid $30 a month; their salaries were increased to $50 a month in 1924—about two thirds the salary of a hospital orderly. Seattle General Hospital was the major site for early graduate medical education in the area; it had 22 interns before 1920. Swedish Hospital Medical Center, which opened in 1910, began its internship program in the 1920s and trained 30 interns in the 1920s and 70 in the 1930s.

Because there were so few Western medical schools—many of the early proprietary schools closed following the Flexner Report—hospitals depended on connections with Eastern schools to try to recruit interns. This situation is illustrated well by recruitment efforts of Virginia Mason Hospital, Seattle, which had opened in 1920. It had a strong link with the medical school of the University of Virginia (Charlottesville) from which its founder, Tate Mason, MD, had graduated.[10] An essay entitled "Reflections," written by A. Stephens Graham, MD, one of Virginia Mason's first two interns, illustrates the uncertainty many Eastern medical school graduates had about coming West and what they found on their arrival.

> My most cherished honor was the appointment by the Dean of the Medical School (University of Virginia) along with Julian Coleman as the first interns of the Virginia Mason Hospital. Actually, however, acceptance was somewhat of a gamble. On New Year's Eve in 1924, in New York City, when I accepted the appointment, I had just been told that morning I had been appointed one of eight interns for St Lukes Hospital, one of the most sought after internships in the country, but I was ranked number eight and missed out on one of the four surgical places leading to a residency. While still bewildered and uncertain, I received a call from a classmate urging me to accept the appointment in Seattle. In my frustrated state, I accepted it and have never regretted it. I was met at the station on July 3, 1925. A quick trip to the Mason Clinic and thence around the lake (Lake Washington) to the summer home of Dr Mason and distinguished friends constituting one large open house for three glorious days. I became acquainted with the men of the staff and their families, as well as leading citizens, including one on his way to becoming the world's greatest producer of planes (Boeing) who continued to be friendly throughout our entire stay.
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> It is incomprehensible in a city of 340,000, Virginia Mason Hospital has never had an intern, and the remaining three or four hospitals have had extremely few for a city so large. The doctors of the staff were at a loss as to how to use us. We made certain suggestions and explained that we were trained to perform and could carry out lab studies on nights and weekends, including blood chemistries, X-rays, give nitrous oxide, ether, perform spinals, transfusions, undertake deliveries, and were avid performers of autopsies. Amazed, yet delighted, they could avoid the expense of technicians nights and weekends.[11]

In addition to these hospitals, St Luke's Hospital in Spokane and St Elizabeth's Hospital in Yakima also began internship programs in the 1920s, as did the St Alphonsus Hospital in Boise, Idaho.[12] There were also internship programs in the early 1920s in Montana at St Anne's Hospital in Anaconda/Deer Lodge, at the Murray and St James Hospitals in Butte, and in Glendive and Missoula. All of these sites were along the railroad line, and it was apparently hoped that more physi-

cians would be attracted to the area through the offer of internship positions.

By 1924 there was enough growth in the number of internships in the country and enough shrinkage in the supply of medical graduates, halving between 1905 and 1920, that there was an internship available for every medical graduate. The expansion in the number of hospitals offering internships and the total number of positions available continued, however. In Washington there were additional positions in Bremerton, Ft Stillacoom, Longview, and in Tacoma at the Pierce County and Tacoma General Hospitals.[13]

As new positions were opened, more internship vacancies occurred. To counter this problem, hospitals lengthened the internship program, often making 1½- to 2-year appointments. They also sometimes added amenities to attract interns. For instance the Providence Hospital began paying 6% interest on the deposits required from interns when they accepted positions. Hospitals also began to accept foreign medical graduates to fill their increasing vacancies.

Specialization and Residency Programs

Another important trend of the 1920s and 1930s influencing the early Northwest general medical education programs was the rise in specialization. The first specialty boards were the American Board of Ophthalmology (1917) and the American Board of Otolaryngology (1924), followed by the formation of many others over the subsequent decade. Although there was then an ample supply of general physicians in the country, relatively few had had multiple years of graduate medical education. In Washington by the 1930s, there were many internships but almost no advanced training. For instance, in 1934 there were nearly 2,400 residency (postinternship) positions in the US, but there was only one residency position in Washington and none in her sister states of Alaska, Montana, and Idaho.[14] In 1939 there were nearly 4,600 hospital-based postinternship positions in the US (assistant residencies, residencies, and fellowships), but only 13 of these positions were in Washington.[15] By 1944, the year before the University of Washington School of Medicine was started, there were 79 graduate medical education positions (59 internships and 20 residency positions) in Washington (77) and Montana (2). Until 1950, all of the medical school graduates and almost all of the medical specialists who practiced in Washington were trained elsewhere.

Beginning a Medical School

Ideas and plans for the beginning of a medical school at the University of Washington date from the 1880s.[2] Although there were several abortive efforts to begin a medical school before World War II, little happened. In the 1940s, however, physicians of the area, particularly those already involved in graduate medical education, and a cluster of interested basic scientists at the university successfully fostered the idea of beginning a school. David Matheny, MD, a Seattle surgeon who served as Chief of Staff and as an active teacher of the interns and residents at King County Hospital, Dr Homer Dudley, who had served on the committee to begin the internship program at Providence, and Alfred Strauss, MD, a prominent alumnus of the University of Washington, who practiced then in Chicago, all were influential in the beginnings of the school. After the recruitment of Ed Turner, MD, as the school's first dean, Dudley and Edwin Bennett, MD, then General Superintendent at Harborview, supported establishing Harborview-based graduate medical education programs under the auspices of the university. Dean Turner also then provided support for the establishment of the surgical residency at Virginia Mason (from the University of Washington School of Medicine Archives).

In the 1950s and 1960s, after the recruitment of clinical department heads to the university, specialty and subspecialty programs flourished, both at the university and at the teaching hospitals of the region. For instance, according to their Office of Medical Education records, the Swedish Hospital Medical Center developed programs in radiation therapy, anesthesiology, pathology, general surgery, obstetrics and gynecology, and diagnostic radiology. The prevailing ideas of this era were that most medical problems could be dealt with better by specialists than generalists. By the mid-1960s, however, it was recognized that there was a growing need for more and better trained generalists and for new approaches to address the need for good physicians for the small towns and rural areas of the region. The reduction of the number of medical schools in the country in the early part of the century and the aging of the nation's general practitioners, coupled with advancing specialization, had created this problem.

A Regional Graduate Medical Education Program

To this point in time, it can be fairly concluded that Seattle and the Northwest had largely played "catch up" in developing medical education and graduate medical education programs. There had been a steady growth in the size and quality of the education and research programs at the university. The attractiveness of the Pacific Northwest had helped to keep many of the outstanding medical school graduates and faculty who were recruited. Although there were some difficult times surrounding the opening of University Hospital, good relationships were steadily developed between the school, hospitals in the Seattle community, and physicians of the region.

It was with the development of regional programs for training generalists in family practice, internal medicine, and pediatrics, and with the beginning of the school's WAMI (Washington, Alaska, Montana, Idaho) program in the late 1960s and early 1970s that the special character of its present graduate medical education program was established nationally. In 1971 a family practice residency network was begun with sites for training in Seattle, Tacoma, Bremerton, Yakima, Spokane, and Boise, with links to many smaller communities. The network was molded substantially from the resources that were set aside early in the century by community hospitals for internship training. Similarly, cooperative agreements were established for expanded numbers of training positions in internal medicine using several hospitals in the Seattle area (University, Harborview, US Public Health Service, Seattle Veterans Administration, Swedish, and Providence hospitals), as well as at sites as far away as Boise, Idaho; Billings, Montana; and Fairbanks, Alaska. The training program in general pediatrics also linked training at the Seattle Children's Hospital and Medical Center with many other sites in the region. Concomitant with these changes, small programs in several specialties were discontinued as part of an overall effort of the school and hospitals to more closely match the graduate medical education efforts in the region to the need for physicians in various specialties. The leadership of Jim Haviland, MD, who came to Seattle in

1940 and served as an early Assistant Dean, Associate Dean, and Acting Dean of the school while maintaining a part-time practice, are particularly noteworthy. He led in developing the contractual arrangements that brought the teaching hospitals and the School of Medicine together in an effective working arrangement. As a result, now 77% of the civilian general medical education positions of the four-state region are centrally coordinated through the school of medicine.[16]

Recently a number of commissions and reports have addressed national problems with the organization and management of general medical education in our country. The principal concerns are the costs, content, and oversight of these educational programs, which nationally now involve 75,000 young physicians and cost almost $3 billion annually. For the four states of Washington, Alaska, Montana, and Idaho, there are now 888 interns and residents in training (including military programs), just over 1% of the national total. Nearly 60% of these residents are completing training in the fields of family medicine, internal medicine, and pediatrics.[14] There are still fewer residency positions, as well as fewer medical student positions, per capita or per hospital bed, than in most other areas of the country, but, by contrast with a half century ago or even more recently, the quality is now perceived to be good, and the demand is continually increasing.

This history of graduate medical education ties together the beginnings of Northwest hospitals and their internship programs and the beginning of the University of Washington School of Medicine. It illustrates how a spirit of cooperation, partially in response to geographic isolation, has served steadily to strengthen medical education in this region. Within this history are many individual stories of the coming West of young physicians who have served the Northwest with distinction. It is a history to which many have contributed and a development from which many more have benefited.

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